Research Proposal of the Thesis Entitled

"Scouting The Aftermath of Malocclusion on the incident of Traumatic Dental Injuries in Patna Population"

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INTRODUCTION

The grade with which an individual enjoys important part is related to craftmanship of life. With the aim of good quality of life mouth instigate crucial role. Quality of any individual's life is affected by oral health related facet. Amongst all the dental problems the traumatic dental injuries (TDI) hold the top position. A latest meta- analysis study describes that whenever there is increased in overjet then chances of TDI in the permanent anterior dentition increases by double or triple[1]. It not only brings about trauma to the dentition and periodontium but it also affects mental status. Physical and psychological limitation in dentistry can directly affect speech, locomotion, self- esteem etc. Thus, affecting wellbeing of individual's life.

World health organization (WHO) has also intervened in the definition of health by building on social wellbeing. Since then oral health confers on general wellbeing of any individual. Many such evidences are present in literature which clearly shows negative collision between health and quality of life[2,3]. Which in term also known as OHRQoL i.e., Oral Health Related Quality of Life.

Meta analysis in such case have stated that if early intervention by an orthodontist in case of forwardly place or proclined maxillary anterior dentition can decrease the occurrence of traumatic dental injuries[4]. Obesity in childhood has been considered as global epidemic recently and many literature stated that TDIs is another risk factor[5,6-8]. Cost of the treatment and its increased prevalence rate deepens the requirement of education and further efforts should be taken for conduction prevention scheme which should be based on panoramic understanding of the situation.

Dental indicators alone without having any information on oral health wellbeing are considered insufficient. As a consequence, it becomes mandatory to evaluate the psychological and the physical aftermath on oral health[9]. Nevertheless, it becomes equally important to evaluate the connection or inter relationship between the two variables i.e., biological or clinical. Diversity of social environment and cultural circumstance can mediate or put the influence on the health related quality of life. WHO endorsed the term dental aesthetic index (DAI). Which is considered as a well-grounded tool for assessment of malocclusion[10,11]. DAI helps in evaluating dentofacial anomalies, classify malocclusion and evaluates orthodontic treatment need[12]. Fewer recent studies[13-15] states that as a result of malocclusion which is examined through the DAI can extend the likelihood of caries and

also at the same time it leads to negative impact on OHRQoL.

The aim of my research is to come up with evidence on the consortium between treated/untreated TDI and its impact on quality of life. Children ranging between age group of 11-14 years will be the part of this research. The sample will be collected from Buddha Institute of Dental Sciences and Hospital, Patna, Bihar.

STATEMENT OF PROBLEM

It has been observed that increase in overjet can double or triple the possibility of Traumatic Dental Injury (TDI).

CLINICAL IMPLICATION OF THE STUDY

There are many evidence in literature which shows that TDIs have pessimistic impression on oral health related quality of life. Due to its high prevalence and treatment cost emphasize on the need to education and prevention programs. Which should be based on extensive understanding of the condition.

AIM

The consortium between traumatic dental injuries (TDI) and oral health–related quality of life (OHRQoL) among the Patna adolescence children age group between 10–19 years.

OBJECTIVE

Constituents of the dental aesthetic index (DAI) that strengthen to come up with Traumatic Dental Injuries(TDI) will also be evaluated in Patna population.

OHRQoL

As per guideline by WHO health itself is completed by mental, physical and the most important social wellbeing.it should not merely be focused on absence of disease and infirmity[16]. OHRQOL targets the shifts in the deep understanding of health not just the absence of disease and delicacy to complete mental physcical and social well-being of the WHO.

HYPOTHESIS

Proposed Hypothesis

Early orthodontic intervention in case of proclined maxillary anterior teeth i.e., central incisors, lateral incisors and canine reduces the incidence of TDI in comparison with late or no orthodontic treatment.

Null Hypothesis

Through the null hypothesis this research will proceed on the hypothesis that there will not be any difference in patients with and without traumatic dental injuries.

REVIEW OF LITERATURE

Garcia Godon et al (1981)[17] This research was conducted in the Dominician school children. It was a reterospective study with sample size of 596 subjects with the age range of 7-14years. Prevalence of injuries was 18.1% in that 17.4% in boys and 18.8% in girls. In 14years children's highest injuries were noticed followed by the 12years old. Most common type of injuries noticed in both the sexes was the fracture of enamel i.e., 51.1% walk behind is concussions 25.6%. Significantly more girls suffered from concussion than boys. Falling against an object was nearly common in all source of injury. Place of occurrence of injury was at home. Almost 34.1% was affected with it. 63.9% injuries were noted in maxillary central incisor. Boys were the least affected with mandibular lateral incisor injury.

W. Marcenes (2007)[18] This research is conducted in order evaluate injuries to which permanent incisors are exposed and the same time its prevalence was also inspected in a school children aged 12 years in Jaragua do Sul, Brazil. This research was focused on the genesis and the wide lay out of TDI to permanent incisors. 476 subjects were chosen for this research. This comprises of both girls and boys. Multistage sampling technique was used for the research. Upper and lower permanent incisors was were examined. Apart from it various other parameters like was overjet, lip coverage, traumatized anterior teeth, cause of trauma were also assessed. Result of this research showed percentage of boys getting injured was more than the percentage of girls getting affected. Increased overjet, inadequate lip coverage did not experience dental injuries.Falls were reported as major cause of dental injuries to permanent incisors subsequently taffic accidents, sports, violence and collision with people

or in animated objects also played role In injury. Socioeconomic status had not relation with trauma.

Cortes in (2001)[19] carried out a cross sectional survey. Sample size comprised of 3702 subjects. Age group was between of 9-14 years. Dental examination was carried out by one dentist. Outcome of this study was targeted on overjet, lip coverage one tooth damaged, two teeth damaged, three more teeth damaged which was respectively 21.5%, 28.5%, 79%.19.4%,and 1.6% respectively.

Ulf Glendor (2009)[20] The research was focused on the well known and less known factors responsible for TDIs. The data for the review was collected from various online sources such as Cochrane, social citation index etc. Result of this research review showed that. Oral factors, environmental determinants and human behavior increased the risk of TDIs. Other factors contributing in the risk of the TDIs are illness, learning difficulties, physical limitations and inappropriate use of the teeth. Amateur athletes have higher rate of TDIs compared to that of professional athletes. It was also
noted that falls and collisions mask international TDIs.

Nihal Hamamci (2009)[21] this study was conducted in Turkey University. The aim of this research was to scrutinize the connection between the Turkish University student's cognizance towards malocclusion. Further their satisfactions with their own dental appearance and the severity of their own occlusal irregularities. 841 university was randomly selected. Out of which 522 males and 319 were females. The age range was 17 years-26 years. The mean age of the patient was 21.91+/- 1.92 years. A [reformed questionnaire was used for this purpose. This questionnaire was based on awareness towards orthodontic malocclusion, their satisfaction level and actual severity of malocclusion was intent on DAI. Chi square test and Spearman rank-order correlation was performed for gender difference and for awareness of malocclusion respectively. Analysis of variance and univariate analysis was used. This analysis was used to access the age and gender. No significant relation was stablished between DAI score, awareness or satisfaction. Whereas age showed quite significant effect on satisfaction and gender on DAI score variation.

Bendo et al (2010)[22] this research was conducted in Brazilian school children. Where association between treated and non – treated TDIs was stablished. The aim of the present research was to evaluate the association between treated/untreated TDI and its impact on the quality of life of children between 11 to 14year old Brazilian school children. This is a cross

sectional study research comprising of 1612 girls and boys school children. OHRQLs was examined using child perceptions questionnaire. Impact short forms, composed of 16 items and self- administered by all children. Dental caries, malocclusion and social vulnerability index were determined. This was used as controlling variables. untreated TDIs were diagnosed in 219 children. Whereas 64 cases were treated TDIs. Statistically significant association was noted treated and non-treated traumatic dental injuries. Children falling in category of untreated TDI were 1.4fold distinctly possible to report impact on public appearance like avoid laughing or smiling than those without TDI. Children with treated traumatic dental injuries were 2 folds distinct to report impact.

Traebert et al (2012)[23] This research was conducted by Jefferson Traebert in the year 2012. It was a cross sectional study in which size of the sample was 409 school children. Inclusion criteria of this research was derived from United Kingdom children's health survey. WHO regulation was used to calculate the dental caries in anterior teeth and malocclusion status. A questionnaire on the basis of child's perception. The result was on the basis of prevalence of one or more negative impact occurring on quality of life. Which is recorded on the basis of occurring often or very often. TDI was reported to be 16.6%. Adverse effect which was based on often and very often was approximately 46.6% in logistic regression.

Annarosa Scapini (2014)[24] This study showed to test the hypothesis. The hypothesis was targeted on Malocclusion that do not have negative effect or impact on subect's well being. This is evaluated in adolescent categories. This research was cross sectional with the sample size of 519 and the age range was 11-19 years. These patients were attending public school in Osorio. Examination was carried out by one examiner in which DAI, DMFT and TDI was evaluated. Consequences of this analysis showed visible impact. Difference was stablished in 2 categories. Girls with OHRQoL had a greater impact especially children living in nuclear family and having lower household income and those with DMFT. Malocclusion also had strong association with OHRQoL.

Stefano Petti (2014)[25] this research was conducted to evaluate the association between the large overjet and TDIs. This was a meta-analysis and the source of collection of data was based on online sources such as scopus, medline etc.. Primary subjects were sub- divided into two categories primary and permanent teeth. Primary teeth have an overjet of approximately 3-4mm and permanent teeth overjet were around 6 $\pm$ 1mm. subjects from Asia, America, Africa, Europe were the part of this study. More than 10,000 subjects were

part of this study.

Karmer in (2017)[26] performed a cross sectional study.Which comprised of 509 subjects were part of this crossl study. Subjects age range was 11 to 14 years. Outcome of this study stated that TDI was 11.6%. severe and handicapping malocclusion was 24% and 21.6% respectively. Two folds higher TDI was noted in adolescents with the high degree or severe malocclusion. When compared with normal or minor malocclusion.

METHODOLOGY

Study Design and Area

This research will be carried in Buddha Institute of Dental Sciences and Hospital, Patna. The sample size is 750 and the age range of the patient will be from 11-14 years.

Measures

This research will be carried by single person, this will avoid bias in the research. Anderson classification will be used for the evaluation of evidence of TDI upper and lower anterior segment excluding canine. Elli's class I,II and III fracture, tooth discoloration due to lateral luxation, intrusion and extrusion will be evaluated. DMFT (Decayed, Missed and Filled teeth) index will be visually diagnosed.

Clinical Examination

Patient's dental examination will be executed in the premised of Buddha Institute Of Dental Sciences and Hospital, Patna. A head lamp, disposable mouth mirror, probe will be used for dental examination. Patient's examination will strictly limited to clinical examination. Patient will not be subjected to x-rays. All precautions will be taken against individual's cross-section. Proper sterilization protocol will be followed.

Inclusion Criteria

- No history of caries
- Malocclusion
- Trauma from occlusion

Exclusion Criteria

- Previous history of orthodontic treatment
- Patient incapable of intellectually answering the question
- No syndromic condition

Data analysis

Data will be examined using SPSS software.

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